

THE INTESTINAL DYSPEPSIA OF CHILDREN

A THESIS

FOR THE DEGREE OF M.D.

PRESENTED BY

J. BRUNTON BLAIKIE, M.B., C.M.



## CHRONIC INTESTINAL DYSPEPSIA OF CHILDREN.

---

A correct treatment must be founded on a correct diagnosis.

This truism, at first sight, appears so obvious as to be unnecessary of enunciation. A little consideration will, however, shew us that we are rather apt to forget to apply the aphorism in the full sense of its meaning. A correct diagnosis does not mean the mere tacking on to a disease of some high sounding name under which - ostrich like - we are too apt to conceal our ignorance, and by which we are too often actually led astray in our treatment, but must include a clear mental picture of all the signs and symptoms which the use of the term implies.

With the majority of diseases this is fully recognised and thoroughly taught, and it is not the fault of the science of medicine if the ordinary practitioner fail to diagnose a well marked case of pernicious anaemia, of locomotor ataxia, or of aortic aneurism. These diseases however, as the student quickly discovers when he leaves his Hospital days behind him, do not constitute the large proportion of all illnesses that he was wont to imagine, and he is surprised to find that even pneumonia and

phthisis occur infinitely less frequently in his general practice than do cases coming to him with complaints, which he can call only by such vague terms as Debility, Wasting, Gouty Diathesis, or Dyspepsia, - terms which too frequently lead him astray rather than guide him to a proper treatment.

It shall be my endeavour in this Thesis to collect and systematize the phenomena observed in that disease occurring in children about the period of the second dentition, which has been variously described either by one or other of its most prominent symptoms, such as night terrors, worms, headache, bilious attacks, colic or cyclic albuminuria, or else has been known by the more general terms Dyspepsia, Anaemia, Neurasthenia, Debility, Lithaemia or Mucous Disease.

I shall then proceed to demonstrate the great importance of a recognition of the disease from the point of view of a correct prognosis and treatment, both of which I shall consider.

By the great kindness and with the able help of Dr Hutchison, I have been enabled to take full notes of a large number of patients who have been attending at the Out Patient Department of The Sick Children's Hospital, Great Ormond Street, suffering from chronic Intestinal Dyspepsia, and it is from 50(\*) of

---

\* One case was from the West London Hospital, and one from the Margaret Street Hospital for Consumption.

the most typical of these cases, that I have based my statistics as to the frequency of incidence, the relationship to each other, and the importance of the various signs and symptoms observed.

Before proceeding to a detailed consideration of this condition, however, it may be well to give a very brief clinical picture of the main features of the disease, in the form of a typical case:-

A boy, aged 8, is brought to the Hospital; his mother states that he is wasting, "has no life in him," "is very nervous," "has a headache in the morning," "suffers from pains in the chest," "has a bad cough and seems to be in consumption." When interrogated as to the duration of the illness, she states that he has always been weakly but has been worse the last few months. On examination we find that the child is very thin but is not emaciated, that he has a sallow complexion, dark rings round the eyes, and anaemic conjunctivae. The chest is found to be perfectly healthy, though badly developed, on account of the presence of adenoids and enlarged tonsils. The "pains in the chest" are found really to proceed from the epigastric region. The tongue is slightly furred and several carious teeth are present. On questioning the mother we learn that the child is very restless at night, suffers from night



terrors and awakes tired, languid and with frontal headache. He frequently has attacks of cramp-like pains in the epigastric region, is inclined to be constipated, is nervous and cries very easily. His appetite is very poor and distinctly capricious. Some slime and a number of thread worms have been noticed in his motions. In other words, and even more briefly, the typical case is that of a child about the period of the second dentition with the symptoms of wasting, languor, nervousness, frontal headache, epigastric pain, deranged appetite, cough, and nocturnal restlessness, accompanied by some of the other signs or symptoms already mentioned.

From this description it is seen that it is from symptoms much more than from signs that the clinical picture of the disease is drawn. It may with some justice, be argued that there is no definite proof that the condition is really one of chronic intestinal dyspepsia, or, at any rate that chronic intestinal dyspepsia is the primary factor of the disease. To some extent this objection is, unfortunately, true. At the same time it is of the utmost importance that we have some name for the disorder - a name which will enable us to have a clear mental picture of the group of symptoms, but which will not be capable of too wide an application,

as would be "The marasmus of Childhood"- and will not bind us to any preconceived idea as to the etiology of the condition - as do the names "Lithaemia" "Neurasthenia" and "Mucous Disease".

Though there is no doubt, therefore, that there is a gouty history and gouty manifestations in many of the cases, that the title "neurasthenia" will embrace very many of the phenomena of the condition, and that "Mucous Disease" is a name which has the advantages of being distinctive and of being the title by which the condition has already been well described, it seems best, for the present, to adhere to the name which binds one to less, and at the same time conveys to one's mind the salient features of the disease - Chronic Intestinal Dyspepsia of Children.

The importance of the recognition of this condition as a definite clinical entity is very great, and this for three reasons.

In the first place it is an exceedingly common condition. Carr(\*) in an article on Chronic Dyspepsia in Children, in which he discusses this condition, says that "in the ordinary routine of

---

\* Carr, J. Walter, Chronic Dyspepsia in Children, American Journ. Med. Sciences, 1895, CX. p. 666.

hospital out-patient work among children of, say, from two to ten years of age, a very large proportion - if not the majority - of the cases, are brought for digestive disturbances or their consequences." I would go further and say that, of the children between 3 and 12 years of age seen in the out-patient departments, in London, two thirds of them are suffering from "digestive disturbances or their consequences". Almost half of these present the typical symptoms of the condition which is now under consideration.

The second reason is that by correctly diagnosing the disease, one can at once reassure the relatives as to the prognosis of the child's condition. The symptoms often closely resemble those of tuberculosis - general tuberculosis, phthisis or tabes mesenterica - and the mother's fears are too frequently increased by her medical man, who may tell her either that the child is "going into a decline", or actually that the child has consumption. By recognising this condition, therefore, the doctor would save not only his patient and the patient's relatives and friends from much anxiety and sorrow, but himself from the humiliating confession of having made a mistake in his diagnosis.

The third, and even more urgent reason for the

importance of the recognition of the condition lies in the fact that by correctly diagnosing the disease one radically alters the treatment, and, instead of stuffing the child with nourishing food and drenching him with cod liver oil and syrup of the hypophosphites - which both tend to aggravate his condition - one can, by suitable dietetic and medicinal means, comparatively quickly arrest a condition, which otherwise would probably continue to a greater or lesser extent for years, and, by lowering the general vitality of the patient, would render him more liable to intercurrent disease and its consequences.

When one studies the literature of the subject, one is not surprised that the knowledge of the general practitioner with regard to it is generally conspicuous by its absence, or, at best, extremely hazy and vague. In most of the standard books on medicine, little or nothing is said about the condition. Even in text books devoted to the Diseases of Children the information is most meagre.

There is, however, one notable exception. Eustace Smith, (\*) in 'The Wasting Diseases of Children'

---

(\*) Smith; Eustace, 'On The Wasting Diseases of Infants and Children,' 6th Edit. 1899.

gives a full and very accurate description of the malady under the heading of Mucous Disease.

He considers that the condition is due to an increased secretion of mucus from the whole internal surface of the alimentary canal,"a mucous flux which interferes mechanically with digestion and absorption of the food."

It is true that in a considerable number of cases one can get a history from the mother of "slime" having been noticed in the motions, but in the majority of instances this has not been observed, and, in some of these cases the mothers are confident that had it been present they would have seen it; moreover, even were mucus constantly present, it by no means proves that this is the cause and not the result, of the condition. He considers that the most common cause of mucous disease is whooping cough, and says that the condition of the tongue in the two diseases will be found to correspond exactly. He describes it as having a glossy shiny look or as if brushed over with gum. This, he says, is due to the excessive action of the mucous glands in the mouth. This description of the tongue applies excellently to whooping cough, and to some cases of mucous disease. There are a considerable number of cases of the latter malady,

however, where this sign is not present, and it is the exception to find it as well marked as in a severe case of Pertussis.

Another excellent description of the disease is given by Carr (loc. cit.) under the title of "Chronic Dyspepsia in Children". He considers the three most important etiological factors to be hereditary digestive weakness, town and indoor life, and improper feeding.

Quite recently, Hutchison (1) has given a short, but at the same time comprehensive, account of the disorder. It is probably the most accurate account of the condition yet given. He does not, however, mention amongst the symptoms nervousness and excitability - features which are constantly present.

As already stated, most text books err on the side of not saying enough about the condition; there are, however, one or two which make a mistake in the opposite direction, and by subdividing it under several headings, make confusion worse confounded. Thus Starr (2) in his book on the "Diseases of the Digestive Organs in Infancy and Childhood"

---

(1) Hutchison, Robert, Clinical Lectures on the Diseases of Children - Lecture IX. Dyspepsias of the Second Dentition. The Clinical Journal 1903 XXI. 377.

(2) Starr; Louis, Diseases of the Digestive Organs in Infancy and Childhood. 3rd edit., 1901.



describes under the separate headings of Lithaemia, Chronic Intestinal Catarrh, and Mucous Disease, conditions which I venture to think even Dr Starr himself would find it impossible to differentiate in actual practice.

Fenwick (1) in his work on the Disorders of Digestion in Infancy and Childhood, and in his article on "Dyspepsia in Childhood" in Allbutt's System of medicine (2) gives a large amount of information as to the dyspepsias of children, but he nowhere clearly defines the most prominent symptoms of the disorder now under consideration. In the Disorders of Digestion in Infancy and Childhood under the headings of "Chronic Gastric Catarrh in Children", "Weak Digestion in Children", and "The Dyspepsia of Strumous Children" he gives descriptions of conditions, each of which differ to some extent from the others, but none of them quite tallies with the correct account of Chronic Intestinal Dyspepsia.

Goodhart (3) gives a short description of the

---

(1) Fenwick; W.Soltau, The Disorders of Digestion in Infancy and Childhood, '97.

(2) Fenwick; W.Soltau, Dyspepsia in Childhood, Allbutt's System of Medicine, 1897, III, 407.

(3) Goodhart, J.F., and Still, E.F., The Diseases of Children. 7th Edit. 1902.

malady in his text book. He describes the symptoms and signs in a typical case and says of them, "As a group they have much constancy and it becomes necessary to assign them a place, and for purposes of recognition a name also, amongst gastro-intestinal disorders." He has however, no great liking, for the name "Mucous Disease", given by Eustace Smith. In regard to the etiology, he considers the condition "the expression of a constitutional build" - that the patients are the offspring of parents whose nervous systems are feeble or diseased. He does not mention headache in his description of the disease and he places amongst the most important symptoms a furred tongue, foul breath and irregularity of the bowels.

These certainly are all frequently present but on the other hand, all may be absent, otherwise his account is excellent.

Henoch (1) makes no mention of this disease as an entity, but describes at some length the symptoms of Cardialgia and Colic, and also those attacks of "Gastric Fever", which as we shall find when we come to consider the symptomatology, frequently occur in the course of the malady.

---

(1) Henoch, Ed., Vorlesungen über Kinderkrankheiten, 10th Auflage, 1899.

Dessau (1) considers the offspring of gouty parents specially liable to the disease. He thinks (2) that over-feeding, as a rule, is the great source and origin of chronic intestinal indigestion in children. This theory can hardly be supported, for it is often in children with very small appetites that one sees the best examples of the disease.

Rotch (3) describes the malady under the title of chronic duodenal indigestion. Such a title, limiting as it does the seat of the disease to the duodenum, is not justified by the extent of our present information, and, I venture to think, will be even less justified, when our knowledge of the pathology of the condition is extended.

He lays stress on the state of the faeces, which he says in advanced cases are clay coloured and largely composed of mucus. As a matter of fact in most cases the faeces are apparently perfectly normal, though there very frequently is an excess of mucus.

---

(1) Dessau, S.H., Chronic Intestinal Indigestion in children; Pediatrics 1898, p. 458.

(2) Dessau, S.H., Ibid. Medical News, 1898, LXXII. p.509.

(3) Rotch, T.Morgan., Pediatrics. The hygienic and medical treatment of Children. 1901, p. 799.

He wisely emphasises, in the treatment, the fact that codliver oil is contra-indicated as long as the disease continues.

Donkin (1) in his 'Diseases of Childhood', says little about cases of this condition. He agrees "with Dr. Goodhart in recognising in them a strong neurotic relationship". "They usually respond but little to merely dietetic or medicinal treatment, but often readily improve with general hygienic measures and change of scene and surroundings."

There is little doubt that the most powerful therapeutic measure we have in these cases is change of air, but "dietetic and medicinal treatment" - if properly prescribed and enforced - are of the utmost importance: it is unfortunate that a standard text book should try to lead one to think to the contrary.

Holt (2) also describes "Chronic Intestinal Indigestion"; he lays too much stress on the "large protuberant abdomen", and he, too, states that the faeces are "light grey in colour or perfectly white".

Flatulent distention of the abdomen is occasionally observed, it is true, in this condition, but it is rarely very pronounced and often completely absent.

When one considers that many of the various

---

(1) Donkin; H. Bryan, The Diseases of Childhood (Medical), 1893, p.62.

(2) Holt; L. Emmett, Diseases of Infancy and childhood. 2nd Edit., 1903.

symptoms of chronic intestinal dyspepsia in childhood are amongst the commonest in medical practice, one is not surprised to find that the literature about them is immense. Little would be gained, however, in trying to unravel the tangled mass of evidence or in discussing the many and varied treatments adopted. Most of the authors are, apparently, quite unaware that there is such a disease as Chronic Intestinal Dyspepsia, and exalt each of its symptoms to the dignity of a disease, to be treated, generally, symptomatically, and one reads of wretched children who are wasting and have headache, night terrors and a cough, who are stuffed with unsuitable food, and dosed with chloral and bromide, the hypophosphites and codliver oil, till their symptoms - and doubtless the children also - disappear.

The object of this paper is synthetic - to group all those symptoms together, and by shewing their relationship to one another, to allow of a wider view of the conditions to which they give rise, and to point the way to a rational - as opposed to a symptomatic - treatment.

Before proceeding, however, to a consideration and analysis of the symptoms of the series of cases I have collected, it may be well shortly to consider

the views of those who recognise the symptom-complex of the disease but ascribe it to causes other than intestinal dyspepsia.

Eleven years ago, Sutherland (1) described a series of symptoms closely resembling those we now discuss. He attributed them to the Uric Acid diathesis, and since his paper several observers, especially in America and France, have taken a similar view. Thus Rachford (2) cites many cases, some of them shewing symptoms due, obviously, to the passage of uric acid, others again having a clinical picture closely resembling that of intestinal dyspepsia.

Comby (3) in an address delivered before the Section for Diseases of Infancy of the International Medical Congress of 1900 also described several conditions which he said were due to the lithaemic diathesis. The symptoms he describes do not, however, so closely resemble those of intestinal dyspepsia as do those described by Sutherland, and

(1) Sutherland; G.A., On some Symptoms associated with the Uric Acid Diathesis in Children. Brit. Med. Journ. 1892, I. p.856.

(2) Rachford; B.K., Lithaemia Archives of Pediatrics, 1897 XIV., 561. Symptomatology of Lithaemia Ibid, p.661. Treatment of Lithaemia Ibid, p.742.

(3) Comby; J., L'Uricémie chez les Enfants XIII Congrès Internat. de Med., 1900 Sect. Méd. de l'enfance, p. 609.



in the majority of the cases he gives, the patient was plump and healthy looking - in the statistics which I have collected of fifty cases of intestinal dyspepsia, every child was wasting, and most of them were anaemic. Following symptoms of a nature similar to those described by Sutherland (1), there may actually be the passage of gravel, as is described by Levison (2).

There is no doubt however, that many of the symptoms of a great number of these lithaemic children are due to intestinal dyspepsia, and that the conditions overlap.

Curiously enough one of the very best descriptions of intestinal dyspepsia is given by Sutherland when describing the symptomatology of Cyclic Albuminuria. (3)

Dr Sutherland considers that in cases of cyclic albuminuria "there is a general pathological condition present to which the various symptoms may be ascribed" and that this is "a condition of toxaemia similar to, or identical with, that of the uric acid diathesis". As we shall see later, cyclic albuminuria

(1) loc. cit.

(2) Levison, F. Die Harnsäure diathese, 1893, p.111.

(3) Sutherland; G. A. Cyclic Albuminuria; 1900, p.13 et seq.

occurred in several of the children in my series of cases.

According to M. Rousseau-Saint-Philippe, (\*) the entire pathology of childhood is dominated by "the infection of the intestinal tract, and the auto-intoxication which proceeds from it". In infancy it is the stomach and small intestine which fail, in later childhood it is, above all, the large intestine. He considers that improper food, hurried meals, bad teeth, and neglect of the bowels are largely to blame for causing the condition. The accumulated faeces, in very constipated cases, consist, he says, partly of imperfectly digested material, but also very frequently of intestinal sand.

Whilst we see, then, that a vast amount has been written about the various phenomena of this complaint, most of it, it is true, without the authors being aware that they are dealing with more than an accidental grouping of symptoms, - we are surprised to find that, apparently, no attempt has ever been made to collect a series of cases and to tabulate and analyse their symptoms, although it is obvious that this is the only way by which we

---

(\*) Rousseau-Saint-Philippe. Crises abdominales et lithiase intestinale chez l'enfant. Revue Mensuelle des Maladies de l'Enfance, 1902, XX, 45.

can verify our opinions and increase our certain knowledge of the condition. When we consider that the disease is one of the very commonest of childhood, we realise the importance of supplying, without further delay, the required facts - as opposed to opinions - of its symptomatology.

The fifty children of whom the following particulars were collected were taken as being fairly typical examples of the disease when at its worst. In considering the following statistics we must remember that it is only with very pronounced cases of the complaint that we deal, and that innumerable children have its symptoms to a lesser extent, but that from one cause or another, it does not assume the severe form of the full-blown case we will consider.

In its frequency of incidence, in the fact of its affecting a special period of childhood and in the way in which the mildest cases have no definite limit, but merge gradually into the normal, chronic intestinal dyspepsia closely resembles rickets. In order to grasp aright the significance of the signs and symptoms about to be analysed we must not forget the close analogy between them. One must here, just as in rickets, first have studied the typical case before one can recognise, and properly

treat the mildest form of the disease.

Let us for a moment imagine that Rickets, as a definite entity is still practically unrecognised by medical men, that each of its manifestations is described as a disease sui generis, to be treated symptomatically; let us, I say, imagine this to be the case, insert the term Chronic Intestinal Dyspepsia of Children for Rickets, and we have at once a clear view of the present position of the disease in the medical world, of the chaos which exists in its treatment, and of the indefinite demarcation between the mildest cases and normal childhood.

Etiology and Duration of the Disease.Parents' Wages.

In his most interesting and instructive book, "Poverty", Rowntree defines "Primary Poverty" as that occurring in "Families whose total earnings are insufficient to obtain the minimum necessities for the maintenance of merely physical efficiency". In York he found that primary poverty occurred unless a family of five persons, paying a weekly rent of 4/-, earned at least 21/8 per week. Calculating from these figures, I found that the parents of 16 of my series of 50 children were in primary poverty.<sup>(2)</sup> It must be stated, however, that in my figures the wages earned per week did not include moneys earned by members of the family other than the chief bread winner. The patients' mothers, too, in order to be certain of being allowed a hospital letter, probably frequently understated their husbands' weekly earnings, and that this occurred was borne out from the fact that several mothers placed their weekly income at a higher figure to me than they did to the clerk from whose books my statistics are taken.

On the other hand, these figures do not take into account "secondary poverty" - that is, poverty occurring in "Families whose total earnings would

---

(1) "Poverty, A Study of Town Life"; B. Seebohm Rowntree, London, 1901.

(2) In 10 of these 16 children the appetite was described as poor. One would expect by calculation the number to be 7.6

be sufficient for the maintenance of merely physical efficiency, were it not that some portion of it is absorbed by other expenditure, either useful or wasteful".(1) There can be no doubt, therefore, that the parents of a considerable number of the children in my series of cases were in such a condition that they had not "sufficient for the maintenance of merely physical efficiency". It is questionable, however, if the percentage was greater than it is in the general population. Rowntree found in York that 27.84 per cent of the total population were living in primary or secondary poverty, and Booth (2) estimated the percentage in London at 30.7. He also considers that "other cities, if similarly tested, would shew a percentage of poverty not differing greatly from that existing in London".(3)

That such poverty has a detrimental effect on the physical condition of the children who suffer from it stands to reason, and if proof of it were wanted, it is admirably supplied by Rowntree in Chapter V. of his book, in which, by actual weights, measurements and statistics, he shews how much poorer are the development and prospect of life of children suffering from "poverty" than of children with sufficient and proper nourishment.

---

(1) Rowntree; loc. cit.

(2) "Life and Labour of the People in London", Charles Booth.

(3) "Poverty" page 300.



On the other hand, that chronic intestinal dyspepsia of children is by no means limited to the poor can be at once affirmed by any practitioner attending the upper or middle classes, who can recognise the symptoms of the disease. Parents whose means will allow of it are apt to indulge their children in many ways that may predispose them to the disease, and this the poverty of the poorer classes forbids.

In my cases(1) the wages earned were as follows:-

Class A.	(4 to 6 of a family)	(2) less than 18/-	per wk	1
" B.	"	18/- - 21/-	" "	11
" C.	"	21/- - 30/-	" "	27
" D.	"	over 30/-	" "	4

#### Dwellings.

The condition as to room accommodation in my series of cases was as follows:-

In 2 cases	there was less than 1 person	to ea. room
" 4	" " " "	" " " " "
" 12	" " " more	" " " and less than 2 to each room

---

(1) Particulars were not obtained in all 50 Cases.

(2) If the entire Family numbered less than 4, a certain sum was added to the weekly rent for each person less than that number, and the converse was done if the Family exceeded 6.

In 9 Cases	there were	2 persons to each room
" 7	" " "	more than 2 persons and less than 3 to each room.
" 4	" " "	3 persons to each room.
" 3	" " "	more than 3 <sup>(*)</sup> persons to each room.

There was no apparent relationship between overcrowding and the presence of adenoids and enlarged tonsils, night terrors, or morning headaches.

In regard to locality, as was only to be expected, the great majority of the cases came from London and its suburbs, 4, however, were country children, and one of these came from Haslemere in Surrey - a locality accounted to be the healthiest in the South East of England.

In order to find if Chronic Intestinal Dyspepsia were more frequent in town than in country children, as well as to contrast the two classes generally, I have begun an examination of a large number of cases from both areas, but the investigation is not sufficiently advanced to allow of its incorporation in the present work. It would seem, however, that the disease is fairly common in children living in the heart of the country, and probably it will be found that the question of Town or Country

---

(\*) In one of these instances, 2 of the cases - brother and sister - were members of a family of 7 living in 2 rooms. In the other instance a family of 4 lived in 1 room.

life has little influence in its causation. At the same time there can be little doubt that the stimulating, objective life of the Town exaggerates the nervous phenomena of the disease; and that this combined influence tends to produce the person "stunted, narrow chested, easily wearied; yet voluble, excitable, with little ballast, stamina or endurance" (1) who is so typical of the lower-class town life of to-day.

#### Race.

In my series of cases several nationalities were represented. The ancestry was enquired into in 26 of the cases. In two of these, the parents were Jews (2) - in one case Polish, in the other English; other nationalities represented were as follows:- in one case the father was Scottish, the mother Irish; in one the father Irish, the mother English; in two the father German, the mother English, and in one the father was English and the mother Spanish-French. In the remaining 19 cases, both parents were English. The relative frequency of the various nationalities in the figures given, probably fairly accurately represents the percentage of

---

(1) "The Heart of the Empire", London 1901, vide especially the articles "Realities at Home" and "The Children of the Town".

(2) None of the 24 cases whose parentage was not enquired into appeared to be of Hebraic extraction.

their ordinary incidence in all cases coming for advice to Great Ormond Street Hospital, and there is nothing in the figures to shew that the condition affects one race more than another. (1)

Town or Country Life of Ancestors.

According to Cantlie, (2) a third generation of pure Londoners of the lowest classes is almost unknown. Other observers have made a similar statement.

Of the 26 cases whose parentage I investigated, we have seen that 19 were pure English to the third generation. In 4 of these 19 cases, both parents were country bred; in 1 both were born and bred in a town other than London (Coventry), and in 5 only one parent was a Londoner. In the remaining 9 cases both parents were Londoners. Two of these nine cases had two grand-parents born in London and two in the country, and one had two born in London and two in Bristol. In one case the birthplace of all grand-parents was unknown, and in three other instances both parents and two of the four grand-parents were Londoners, the origin of the remaining grand-parents being uncertain. In the remaining two cases, both parents and all grand-parents

---

(1) In taking into consideration all the cases seen by me in the last three years, however, it appears to me probable that Jews are more frequently affected than Christians.

(2) Cantlie; James. Degeneration amongst Londoners, London, 1885.

were Londoners. Thus, of the 19 cases, whose parents and grandparents were English, two were certainly, and three - or possibly four - others were probably Londoners to the third generation.

Considering the enormous influx of the country population into London in the last fifty years, and the amount of intermarriage that must take place between the newcomers and the Londoners by birth, the number of children in the above figures all of whose parents and grandparents were Londoners does not appear small.

It might be argued that there is a great predisposition to chronic intestinal dyspepsia of children in the effete London stock, and certainly, if Cantlie's conclusions are correct, the number of Londoners to the third generation in my cases is very high; without further investigation, however, no definite conclusion can be arrived at.

#### Family History.

It is unfortunate that with the time at one's disposal it was impossible to enquire into each family history with that degree of detail without which information would be of little use. What one would have liked especially to ascertain was whether there was a neurotic taint in the history of the children's forebears. From the few facts obtained

it seems likely that this is so, but not enough information was got to allow of any definite conclusion. A tubercular history was given in some cases, but probably not in more than one would get in the ordinary community. There were no facts elicited which would show that the disease occurs especially in families with a gouty history.

That the disease affects special families is certain. Three families had two representatives each included in my 50 cases, and in at least 3 of the other cases another member of the same family had been treated by me for the same disease, though it was present in a less pronounced degree.

This family incidence is almost certainly due to two or all of three causes, hereditary predisposition, diet, and improper hygienic surroundings. I have been unable to get cases suitable to supply the answer to the question as to which of these factors is the chief cause of the family incidence of the disease. The answer, however, should not be difficult to arrive at, and, when got, would solve to a great extent, the etiology of the malady - it would tell us whether the main factor in causing the disease was hereditary and irremediable, or was due to causes which increased diatetic and hygienic knowledge might remove.



Diathesis.

Amongst the children all types were seen. Several had the pleasing features, the fine complexion, and the long silky hair and eyelashes of the fine tubercular type, others again had the large teeth and the colouring of the typically rheumatic child.

The diathesis was generally masked, to some extent, by the signs of the disease.

School.

It is noticeable that the period of life at which the disease occurs corresponds fairly closely with the period when the child attends school. Some forms of headache and night terrors are no doubt exaggerated by school-work, and the misguided efforts at so-called education of the ordinary board school, by which for many hours every day the child's brain is crammed with undigested facts, whilst his physical education is neglected or ignored, prevent, for many months in the year, a sufficiency of physical exercise from being obtained.

Inattention to the Bowels,

and consequent constipation might be an etiological factor. Constipation was not very frequently present in my cases, and even when observed, was more probably a symptom than a cause.

Diet.

Particulars of the diet were obtained in 18 of my cases, but it is probable that the statements of many of the mothers were unreliable as to the amount and character of the food taken. Thus, probably several parents said their children had butcher meat every day when this was not the case. This special question was asked in 13 cases and in 7 it was said that butcher meat was eaten once daily, in 4 that it was taken "almost every day", in 1 that it was given twice a week, and one child was said to have it once a week.

Seven children were said not to eat many potatoes, in four cases it was said that many were consumed.

A typical diet is the following:-

7.30 a.m. Tea, Bread and Jam, occasionally Dripping.

11 a.m. Bread and Butter.

1 p.m. a little butcher meat, potatoes, milk, currant or suet pudding.

5 p.m. Tea, Bread and Jam.

7 p.m. Bread and Butter.

Taking the results as a whole, it may be said that in probably every case the staple of life is white bread; the usual drink is tea which is generally given at least twice a day. The amount of

carbo-hydrates in the diet far exceeds that of nitrogenous substances and of fats. The four principle carbo-hydrate foods are: 1. Bread - 2. Sugar - 3. Potatoes - 4. Milk puddings, such as sago and tapioca.

A few centuries ago the poorer classes had neither sago, tapioca, sugar nor potatoes, and their bread was coarse and brown and so contained much less assimilable starch than does the fine white bread of the present day. Even fifty years ago most of the carbo-hydrate foods were much dearer and, consequently, less excessively partaken of.

We thus see that this great preponderance of sugar and starch in the diet is only of comparatively recent date, and it appears highly probable from these grounds that this may be a strong factor in the digestive disturbance. This supposition receives strong confirmation from the beneficial results, in the treatment of these cases, of limiting the ingestion of carbo-hydrates.

Hutchison (\*) gives a better apology for Eustace Smith's theory that the disease is due to excessive secretion of mucus than does even Eustace Smith himself. Hutchison ascribes this increased mucous secretion to excessive ingestion of carbo-hydrates - especially of sugar; Eustace Smith, on the other

---

(\*) loc.cit.

hand, considers that it is started generally by whooping cough or measles, and is kept up by slight but frequent chills, to which (as he truly says) the patient is extremely susceptible.

Another fact which strikes one on considering the diet of these children is the absence of indigestible residue; to this is probably, to a great extent due the constipation that is met with.

#### Bad Teeth.

As we shall see, the great majority of the cases have carious teeth, and the septic matter discharged from these may probably, when swallowed, be a cause predisposing to the disease.

The rapidity with which, in some cases, the food was eaten may be a factor in the causation, as well as a symptom of the disease.

#### Second Dentition.

That the disease occurs just at the period of second dentition is suggestive, and this may be of considerable etiological importance.

#### Sex.

Of the 50 children, 34 were boys, and 16 girls.

Though this, perhaps, is a rather larger proportion of boys than really occurs in the disease, there is no doubt that it is commoner in the male sex.

Age.

The age incidence was as follows:-

<u>Age.</u> (last Birthday)	3,	4,	5,	6,	7,	8,	9,	10,	11,	12.
<u>Cases.</u>	3,	4,	6,	7,	7,	10,	4,	3,	4,	2.

From these figures we see that three fifths of the cases were between the ages of five and eight. At Great Ormond Street no children are allowed to attend, who are more than twelve years old. From the way in which the cases diminish before the age of twelve, however, as well as from experience of the out-patient departments of general hospitals, one may conclude that comparatively few cases occur after that age. As the figures show, it is rare to get cases before the age of four.

Duration of Disease and Previous Illnesses.

It was practically impossible to get any very definite information as to the duration of the disease, as its onset is so insidious. In nineteen of the cases it was said that the child "had never been very strong" or that the disease had existed "from birth"; in twenty it was stated to have lasted "for years" - in most of these cases no definite onset was noticed. In only eleven cases was the duration of less than a year.

In four cases the onset occurred after measles, in two after whooping cough, and the origin of one

case was ascribed to Jaundice - more probably a symptom than the cause of the disease.

The small number of cases in which an acute illness appears to have been the starting point is worthy of note, and the fact that only two mothers ascribed the origin to whooping cough is of especial interest in view of Eustace Smith's statement that "whooping cough is, however, of all the diseases the one to which this derangement can most commonly be traced."

A considerable number of mothers, however, said that their children had been worse since some exanthema - generally measles, though whooping cough came next in order of frequency. Nineteen of the mothers were asked if their children had had measles and in eighteen cases the answer was in the affirmative. Thirteen out of eighteen had had whooping cough.

That measles should be the origin or should increase the severity of chronic intestinal dyspepsia is not to be wondered at. When the catarrh of the mucous membranes which so often persists after measles affects the respiratory system the attention is at once called to the condition by the accompanying cough, but catarrh of the alimentary system has no such demonstrative symptom, and the parents, or



even the doctor, of the child frequently fail to detect and so to treat the malady.

Because of the close analogy between chronic intestinal dyspepsia and rickets, it would have been interesting to have found how many of the fifty cases of the former had suffered from the latter disease. Owing, however, to the indefinite demarcation from the normal of the milder forms of rickets, statistics would be of little use. Few of the children shewed obvious signs of former rickets. Three of the mothers volunteered the statement that their children had suffered from "consumptive bowels" - i.e. diarrhoea and vomiting - in infancy. Four cases were said to have had pneumonia, and one rheumatic fever.

In six cases the previous health was said to have been good.

In each case the severity of the disease fluctuates greatly from time to time, and after a change of air, or an acute attack of vomiting and diarrhoea, the child may appear comparatively well. A large number of the mothers noticed this, as was shewn by their statement that their children had suffered "off and on" from birth or "for years", as the case might be.

One finds that there is a distinct seasonal variation in the severity of the symptoms; the

patients are generally worse in the early part of the year - January to May.

My own opinion as to the etiology of the disease is that the two most important factors in its causation are an excess of carbo-hydrates in the diet and a neurotic tendency. Following close on these in order of importance is the excess of brain work and diminished fresh air and physical exercise entailed by the school life of the present day.

Measles or whooping cough frequently exacerbate the condition, but probably are of little etiological importance unless combined with some of the above factors.

Other causes which I think exaggerate the condition, are overcrowding, town life, bad teeth, and the second dentition.

#### Symptoms.

##### Languor.

In every case there was a complaint of languor, though, naturally, its amount varied.

Frequently the mothers noticed this as one of the most prominent symptoms and brought their children "because they had no life in them", they

"lay about" and could not be got out of bed in the morning. Generally this excessive lassitude is most marked in the morning and gets less as the day advances.

Combined with this is another very constant, and at first sight, contradictory symptom:-

#### Excitability.

As many of the mothers expressed it, their children were "shocking nervous". They cry at the least thing, are afraid - often even in the day-time - to be alone, and jump at the slightest noise. They blush or grow pale at the slightest emotional disturbance.

One of the most marked changes as the result of treatment, from the point of view of the child's mother, is the allaying of this excessive excitability. Children who cried at the slightest word of reproach will lose this nervousness and become no more easily affected than would a healthy individual.

Of the series of fifty children, only one was said not to be nervous or excitable.

Another practically constant symptom, and one to which, perhaps, some of the morning languor is due, is

Nocturnal Restlessness.

All, except two, had more or less disturbed sleep. (The mother of one of these two did not sleep in the same room, and was not very intelligent). In thirty eight of the cases, the child would wake up screaming, or had real night terrors - sitting up in bed, crying with fear, and, although apparently wide awake, for some minutes being quite unconscious of its surroundings or of its mother who tries to pacify it. In thirty one of the cases it was noted that the child ground his teeth, and the great majority of them talked in their sleep and snored. Five only were sleep-walkers. Six of the children suffered from night sweats. One had day terrors - similar to night terrors, but occurring in the day. One boy who had very severe night terrors defaecated involuntarily during them.

As a rule it is in the early part of the night that the child is very restless; towards morning he generally falls into a deep lethargic slumber from which, occasionally, it is difficult to wake him.

As we shall find later a considerable number of the cases had large tonsils or adenoid growths. Contrary to what one might expect, these did not seem to have a very great effect in causing night

terrors. (\*) Twenty three cases of night terrors had increase of tonsils or adenoids, fifteen had not. The tonsils or adenoids of 27 of all the cases were increased, and accordingly the figures, calculated mathematically, instead of 23 and 15, should be 20.5 and 17.5. We thus see that rather more of the children with large tonsils or adenoids had night terrors, but that the increase is so slight that it is not beyond the margin of incidental error.

Even snoring did not appear greatly to depend on large tonsils and adenoids for in 25 cases in which snoring was noted (in 21 the presence or absence of snoring was not enquired into; four did not snore and of these four 2 had large tonsils or adenoids and 2 had not) 15 had increased tonsils or adenoids, and 10 had not; by calculation, the proportions should be 13.5 and 11.5.

The two children said not to have disturbed sleep had both large tonsils or adenoids; one of them snored.

Constipation had a definite influence on the causation of night terrors.

---

(\*) "Night terror" is used here in the widest sense of the term and includes cases not only of true Pavor Nocturnus but also those cases in which the child wakes up screaming or crying from fear, but quite realising his surroundings.

In 18 of the children the bowels were regular, and in 18 there was more or less constipation; of the former 5 were without night terrors, of the latter only 1.

Many of the mothers volunteered the statement that their children were much more restless at night when they were attending school, and that when they were kept quiet at home their rest was much less disturbed. This was much more frequently ascribed as a cause than was an access of their digestive troubles thus supporting the view of Henoch (1), Steiner (2) and Wertheimer (3) rather than that of West (4) and Silbermann (5) - namely, that it is to nervous, rather than to digestive influences that the condition must be ascribed.

On the other hand it does not follow that the digestive disturbance from which these children suffer is not the primary factor - acting by rendering their nervous equilibrium more unstable. That this

(1) Henoch, Ed: Vorlesungen über Kinderkrankheiten, 10th Auflage, 1899.

(2) Steiner, Das nächtliche Aufschrecken oder Aufkreischen (night terrors) der Kinder. Jahrb. f. Kinderheilk. 1875 VIII 153.

(3) Wertheimer, Ueber den Pavor Nocturnus der Kinder (nachtliches Aufschrecken: night terrors) Deutsch. Arch. f. Klin. Med. 1879 XXIII. 564.

(4) West, C. Lectures on the Diseases of Infancy and Childhood, 7th Edit. 1884.

(5) Silbermann, O. Zur Lehre vom Pavor Nocturnus der Kinder Jahrb. f. Kinderheilk. 1883, XX. 266.



is very probably the case is seen from the facts that constipation has a distinct influence in causing the conditions and that merely by dietetic means - by diminishing the amount of the carbohydrates - the sleep of those children can frequently be rendered much more placid and refreshing.

Atkinson (\*) considers that night terrors are associated with enuresis which he says is the result of the fright. It was not often that the two symptoms occurred simultaneously; though the number of children who had enuresis and also had night terrors was slightly larger than calculation would warrant:- 12 out of 14 children who had enuresis had also night terrors; by mathematical calculation there should have been 10.8.

Though not one of the most prominent symptoms, Enuresis falls naturally here for consideration. Thirty children did not wet the bed, two had formerly done so, six wetted it rarely or occasionally and six did so frequently. In relation to their numbers, the proportion of boys and girls was practically equal - ten boys and four girls.

Several children found it difficult to hold their water for any length of time during the day.

---

(\*) Atkinson, W.B. Night terrors in Children. Archives of Pediatrics, 1884; I. 753.

The sex incidence would tend to show that phymosis had not much influence in causing these cases of eneuresis. One boy was a circumcised Jew, and another, who had no phymosis, but had a long prepuce, was decidedly benefited by circumcision.

Eneuresis has been frequently ascribed to the presence of worms, and to enlarged tonsils or adenoids.

The present statistics show that only the proportion of children one would, mathematically, expect who suffered from eneuresis also had intestinal worms. On the other hand eleven of the fourteen children who had eneuresis had also enlarged tonsils or adenoids. This figure seems to be beyond the chance of incidental error, for the number should be only 7.5.

The next and very important symptom to be considered is

Headache.

Forty seven of the fifty cases suffered more or less from headache. Two of the three children between three and four years old did not complain of it, the other child who was without this symptom was aged six. In several other cases not included in these statistics it has been noticed that it is comparatively common for the youngest children suffering

from the disease to make no complaint of this symptom.

In forty four of the forty seven cases in which headache was complained of, it was felt in the frontal region. In one of the remaining cases it was confined to the left frontal region, in another to the temporal areas, and in the third to the right vertex. In thirteen of the cases it occurred at no special time, in eighteen it generally came on in the morning, in nine it was worst after school, and in one it occurred either in the morning or after school. Three children had it most frequently in the evening, and in the remaining three cases it occurred only when the child had "bilious attacks" - exacerbations of the disease which will be described later.

It is unfortunate that time did not permit of the examination of the eyes in every case. A certain proportion of the cases were tested, - unluckily the exact numbers have not been kept - and of these six had errors of refraction. Two had hypermetropia one astigmatism, two hypermetropia and astigmatism, and one had myopia. In three of these six cases the headache came on after school, in another it appeared in the evening. The two other children in whom the headache came on in the evening were two of the three cases in whom the headache was not frontal in character - one had headache in the temporal

region and the other in the left frontal region. The child who had right vertical headache had a discharge from the right ear.

Eight of the nine cases in whom the headaches came on especially after school were between the ages of six and eight - just the age when children begin to have steady hard work in their classes.

Night terrors do not appear to be the cause of the headache which occurs when the child awakes; one would expect, mathematically that 14 children with night terrors would have headache in the morning; the actual number is 15. Enlarged tonsils or adenoids are also not the cause, only 9, instead of 10 as one would expect from calculation, have both conditions. Constipation, too, is not the reason for morning headache, for only 2 of the 18 cases were constipated, instead of 4.3 - the number according to calculation.

The next symptom to be considered is  
Cough.

Forty eight of the children had a cough. One of the remaining two had large tonsils and adenoids, and did not have a cough "unless the throat is bad." The other child did not have enlargement of tonsils or adenoids. There was very rarely much expectoration, and the cough was frequently described as

"hacking," and was little more than a clearing of the throat.

Sometimes, however, it was more of a barking nature - the typical "stomach cough." It may be mentioned here that at the time of examination, in only one case was there a slight amount of bronchitis though in a considerable number, on auscultation, one heard an occasional rhonchus, especially on deep inspiration.

From the fact that practically all the children had cough, it would appear that enlarged tonsils or adenoids had little to do with its causation.

Even when there were no large tonsils or adenoids the pharynx was generally more or less congested, however, and it was to this cause probably that the cough in the great majority of the cases was due.

#### Epigastric Pain.

Forty seven of the children suffered from attacks of pain in the epigastrium or right or left hypochondrium. It generally came on at no special time, in only four cases did it appear after food. Occasionally the child would wake crying with it during the night, and in some instances it was most frequent in the morning. In several cases it was said to be "just under the heart," and the mothers

occasionally feared that it originated in that organ. It was frequently so severe that it caused the child to come home from school.

From the fact that the pain had generally no relation to food, and that it was frequently felt in the right or left hypochondrium it seems likely that it originates, as Henoch (\*) says, not in the stomach but in the large intestine.

There was no apparent relationship between this symptom and the presence or absence of mucus in the stools and it occurred as frequently in cases where the bowels were regular, or where there was diarrhoea as where there was constipation. This observation is quite contrary to the statement made in most of the textbooks on Children's Diseases,- namely, that colic is generally the result of faecal accumulation.

On enquiry it was found that many of the cases were very prone to have a "stitch in the side." This pain is of a different nature to the epigastric pain just described, and occurs only after exertion.

#### Pains in other parts of the body.

Two children complained of pains in the legs, and one of pain in the left knee. One child had slight lumbago and one was suffering from a mild

---

(\*) Henoch. (loc. cit.).



attack of "stiff neck." In no case were rheumatic nodules observed. One boy complained of numbness of the hands.

#### Wasting.

In every instance, without exception, the mother said her child was growing thinner. In those cases in which the illness had lasted "off and on" for years, during the remissions the child would gain a little weight, only quickly to lose it again when it had a relapse.

This symptom will be further discussed when we proceed to consider the physical examination.

#### Appetite.

In the great majority of cases the appetite was deranged; in only four cases was it said to be ordinary. In 24 it was always poor, in 9 always ravenous. In 11 cases it varied, in 9 of these at one time it was ravenous and at another time poor and in the remaining 2 it alternated between very poor and ordinary. In two cases it was described simply as "fanciful," but in a great many of the other cases this capriciousness was also noticed.

There was a distinct relationship between the sex of the child and the character of the appetite. In all the female children, with the exception of

two, the appetite was persistently poor. No connection seemed to exist between the amount eaten and the frequency of defaecation, or the presence or absence of worms. An excess of mucus, as we shall see later was noticed in the stools of some of the patients. When this excess was present the appetite was generally poor - the number in which both symptoms were present being 13 instead of 9.6, and only two children who had an excess of slime in their stools had ravenous appetites; the number calculated mathematically should have been 4.3.

As it is known that sugar increases the amount of mucus secreted and as it appears probable that one of the factors in the causation of chronic intestinal dyspepsia was an excessive ingestion of carbohydrates the mothers of the patients were interrogated as to the amount of sugar and sweets their children ate. 22 of the cases were stated to take a large quantity, the remaining 28 either did not like, or were not allowed to eat very much. No relationship can be traced between the taking of an excess of sweets and any of the signs of symptoms of chronic intestinal dyspepsia. Of the 20 children in whose stools an excess of mucus was noticed, only 6 were said to eat sugar to excess. Nine parents said that their children were fond of sweets and sugar, but were not

allowed to have more than a moderate amount; of these, 7 had an excess of mucus in their stools. Even if all these children surreptitiously ate many sweets, however, the number of those eating much sugar who had an excess of slime in their stools would exceed the calculated number only by a fraction. It must not be forgotten that even those children who take no sweets, may, nevertheless, eat an excessive amount of carbohydrates, as by far the larger proportion of carbohydrates ingested, is taken in the form of starch in such articles of diet as potatoes, bread and milk puddings.

The rapidity with which the children ate their food seemed to depend almost entirely on the character of their appetite. Whilst those with ravenous hunger would bolt their food, the others who had poor appetites did not seem to eat too quickly.

#### Irregularity of the Bowels,

though, unlike the above symptoms, not a constant feature of the disease, is, nevertheless, very frequently observed. In only eighteen of the cases was it said that the bowels moved regularly once a day and that the evacuations were neither constipated nor diarrhoeic. Twelve cases were constipated, six were inclined to be constipated. Seven alternated between constipation and diarrhoea, and four between

diarrhoea and regularity. Two children suffered from lienteric diarrhoea and one generally had several loose motions after going to stool.

Patients in the class from which these statistics are compiled are apt to think that a slight degree of constipation is the normal condition of health, and it was necessary to guard against this source of error by asking definitely how often the bowels moved, and enquiring into the nature of the motions, otherwise several cases which were really constipated would have been classed as regular.

Contrary to the description given by Holt (1) and by Rotch (2), the motions were generally said to appear quite normal. In only one case were they stated to be of a greyish colour, in two it was said that they were very dark, and several mothers remarked that they were very offensive.

The above figures show us that constipation is frequent, but is by no means the fons et origo mali that it is accused of being by so many observers.

Those cases of alternating constipation and diarrhoea are typical of the patients in whom there are recurrent attacks of

#### Gastric Fever,

which it may be well here to consider. A typical case of the severest form is that of William K., aged 9, who every three weeks had attacks of headache, vomiting and

diarrhoea. During the attacks he was acutely ill; the tongue was dry and furred, the temperature was high, and he was delirious. He had a severe pain in the epigastrium, and wetted the bed when asleep. He had almost complete anorexia.

This acute illness lasted for three or four days and then all the symptoms subsided and for a few days he was much better than prior to the attack. The diarrhoea stopped and constipation took its place, his appetite then became ravenous and his mother stated that "it is almost impossible to satisfy him." After a week or so the symptoms of chronic intestinal dyspepsia gradually became more marked again and slowly increased in severity till they culminated in another acute attack.

Six of the children in the series of 50 had attacks similar to this, though the seizures were not generally so frequent as in the case cited, and in some the symptoms were less severe and the duration was longer. It was rare that the mother could assign any definite cause for the onset of the attack. In at least nine other cases there were "bilious attacks", which resembled the above in character but were not so severe, and some of the mildest consisted only in attacks of vomiting and severe headache. Even in the cases of gastric fever there was no definite jaundice, though there

was generally a slight icteric tinge.

It is seen that the symptoms of these acute attacks are very similar to those of appendicitis, and, without very careful physical examination, may lead one to a wrong diagnosis.

When the vomiting is not a prominent symptom in the attacks, one may at first think of enteric fever, but the previous history of the child - especially the history of former attacks of a similar nature - ought to prevent the physician from being misled.

#### Jaundice.

There was a history of an attack of catarrhal jaundice in six of the cases.

#### Vomiting

was noted as a symptom only in the above 15 cases, and in 3 others in which it occurred in the morning, shortly after getting up. Five other children occasionally complained of nausea, and in two the food "repeated".

#### Flatulence

is only rarely complained of.

#### An excess of Mucus in the Motions,

the symptom on which Eustace Smith\* lays so much

---

\*Eustace Smith loc. cit.



stress, was observed in not quite half the cases. In thirty of the children it was said either that slime was not present or that it had not been observed. In five it was only rarely seen, in three it was noticed when there were attacks of diarrhoea, and in twelve it was frequently observed. It is probable that in some of the cases, an excess of mucus might be present in the stools without the mothers being aware of the fact, but in these instances the children were generally old enough to be interrogated on the point themselves, and on the other hand some of the cases in which a certain amount of slime had occasionally been noticed might not really be producing a pathological amount of that lubricant, so that, on the whole, the figures given are probably fairly accurate. The character of the mucus varied in the different cases, and was described as "thick white", "thick yellowy", "greeny-yellow", or "brown", or as "like phlegm", or "pieces of slime".

This excess of mucus, as one would expect, was present much more frequently when there was constipation or diarrhoea than when the bowels were regular; excess of mucus was observed in 9 of the 18 cases where there was constipation, in 8 of the 14 cases in which there was diarrhoea or diarrhoea alternating with constipation or regularity, and in

only 3 of the 18 cases in which the bowels were regular.

In one instance in which there was much mucus in the stools it was also observed in excess in the vomited matter.

#### Intestinal Parasites.

Intestinal worms are very frequently found in cases of chronic intestinal dyspepsia and the figures of the fifty cases under consideration are probably lower than the average. The figures are:- In three cases tape worms had been seen, in two the *ascaris lumbricoidis*, and in six cases thread worms were present at the time of examination. In nine other children thread worms had formerly been present but had been got rid of; they were still present in only one child above seven years of age. Before intestinal worms can flourish there must probably always be a predisposing as well as the exciting cause, and the condition of the bowel in chronic intestinal dyspepsia admirably suits the growth of the parasites.

Their presence in the intestine therefore, is to be considered much more as a symptom than as a disease, and many of the symptoms ascribed to worms are really due to the disease which allows of their existence.

Contrary to what one might expect there appeared to be no close relationship between the presence of an excess of mucus and of worms.

#### Attacks of Pallor.

The presence of this symptom was enquired into only in twenty two of the cases. Seventeen of the children were said by their mothers frequently to "come over white". In the remaining five this had not been observed. A description typical of many of the others was given by the mother of Eva B., aged  $4\frac{1}{2}$ , who said that her daughter "changes" about six times a day, all her face becomes yellow except round the eyes, where the colour is almost black. She feels faint and cannot stand whilst the attack is on; it lasts about ten minutes'. Some of the children actually faint in these attacks, but this is quite the exception.

Exertion, epigastric pain, and emotion were said sometimes to produce these attacks, but most frequently they came on without any apparent cause.

It is unfortunate that the presence or absence of this symptom was not enquired into in every case, as far as the statistics go they seem to show that there is a relationship between the condition and the presence of worms. In nine of the seventeen cases who "came over white" there was a history of

intestinal parasites, (including the three cases of tape worms, and one of the two cases of round worms) and of the five who did not have attacks of pallor, only one had (thread) worms.

#### Cold Hands and Feet.

In 46 of the cases the condition of the hands and feet was enquired into, and in 28 of these the mothers stated that the extremities were generally cold. In 7 of the remaining cases the parents did not know whether the hands and feet were usually cold or not. In most of the cases, in fact, the knowledge of the patients' parents in regard to this symptom seemed very vague, so that it may be wiser not to draw any deductions from the relationship of cold extremities to the other symptoms; if the replies to this question were accurate, there would seem to be a connection between chilly hands and feet, diarrhoea, gastric and bilious attacks and also periodic pallor.

The occurrence of cold hands and feet generally means a diminished blood supply to these parts, and consequently more or less congestion of the internal organs. That this symptom may tend to prolong the disease is, as Eustace Smith says, very probable.

#### Masturbation.

This was not enquired into, and in no case was

it mentioned as having been observed by the parents.

Stammering, Aphasia, and Asthma after meals,

all of which have been described as occurring in chronic intestinal dyspepsia of children, were not found in any of the 50 cases under consideration.

Physical Examination.

Facies.

The typical facial appearance, as my notes show, is a pale and sallow complexion, dark rings round the eyes, and an appearance of great tiredness.

If the child is excited, however, his face will readily flush, and for a few minutes he will, to superficial observation, appear bright and well. The nutrition of the face appears very rarely to suffer so much as that of the trunk and extremities, and, as a consequence in none of the cases was the face noted as being very thin, the faces of nine of the children, on the other hand, were described as fairly fat and well nourished. Twelve of the children were said to have an "adenoid" appearance, two were put down as typically tubercular looking.

Nutrition

The nutrition in 3 cases was described as "fair", in 3 as "moderate", 37 children were said

to be thin and 7 very thin. In no case, however, was there actual emaciation, and on the other hand probably in no case did the nutrition reach the normal standard. The muscles felt soft and flabby to the grasp. The younger children were, as a rule, better nourished than were those a few years older. 16 of the children were weighed; the following table gives the particulars.

Initials.	Sex.	Age.		Weight.	Difference in Weight from Average child of same sex and age. (*) lbs.
		Years.	Months.	sts. lbs.	
E.J.	Girl	4.	0	2. 6	+ 4
F.D.	Boy	4.	6	1. 12 $\frac{3}{4}$	- 7
P.C.	Boy	4.	9	2. 5 $\frac{1}{2}$	- $\frac{1}{2}$
C.H.	Boy	5.	7	2. 5 $\frac{1}{2}$	- 2
H.D.	Girl	5.	9	2. 4 $\frac{1}{4}$	- 3
L.H.	Girl	6.	4	2. 8	- 1
A.L.	Boy	6.	3	2. 10 $\frac{1}{2}$	- $\frac{3}{4}$
R.C.	Girl	6.	3	2. 0 $\frac{1}{4}$	- 7 $\frac{1}{2}$
S.A.	Boy	7.	6	2. 11 $\frac{1}{2}$	- 5
W.W.	Boy	8.	6	2. 9 $\frac{1}{4}$	- 12
W.K.	Boy	9.	0	3. 4 $\frac{1}{4}$	- 5
E.P.	Girl	10.	6	3. 11	- 2
T.H.	Boy	11.	1	3. 12 $\frac{1}{4}$	- 6 $\frac{1}{4}$
A.G.	Boy	11.	7	3. 10	- 13
W.W.	Boy	12.	0	3. 9 $\frac{3}{4}$	- 15
H.S.	Boy	12.	6	4. 8 $\frac{1}{2}$	- 2 $\frac{1}{2}$

(\*) The average weights are taken from Treves' \* Physical Education (London 1892) p.6 Table 1. The average weights in the table are given for each year of age, and the age of the child is put down as its age at last birthday; I have added on half a year, therefore as representing the average and have based my calculations for the special month required from this assumption. My cases were weighed nude; I have calculated the clothes as  $\frac{1}{8}$ th the body weight.

\* Treves, Fred, Physical Education, 1892.



Skin.

In 48 cases the condition of the skin is noted. In 18 of the patients it was found to be more or less harsh and dry, and in 30 it was moist and pliant. Even in those cases in which dryness was noted, it never reached the degree so typically seen in tuberculous disease. Frequently it had the sallow tint which was so often seen also in the face. Three of the patients had seborrhoeic eczema and in four of the cases the veins over the upper part of the sternum were very apparent.

Harshness of the skin was not more frequently noticed in those children who suffered from diarrhoea.

Conjunctivae.

There was generally a certain amount of anaemia. In 19 cases the conjunctivae were only very slightly or not at all anaemic, in 27 of the patients anaemia was present, and in 4 it was very marked.

There seems to be no relation between the presence of anaemia and the periodic attacks of pallor already described.

At the time of examination, the conjunctivae of none of the children showed a definite icterus.

Teeth.

In 8 cases none of the teeth were carious (in

one of these, 3 molars had been extracted) - 5 children had 1 carious tooth, 7 had two, 10 had three, 6 had four, 7 had five, 2 had six, 1 had seven, 1 had eight, and the teeth of 3 were described simply as "bad."

In the above figures any tooth in which there was a cavity was noted as being carious; time did not permit of an examination to determine in how many of the teeth the caries was still active. The figures also include teeth which had been stopped, but this had been done in only two of the cases. Of one child, who had five carious teeth stopped, it is noted that this did not improve his general condition, though it relieved the toothache from which he then suffered. In the 50 cases, 35 second teeth had already been removed.

The amount of sweets eaten would seem, in the cases under consideration, not to have been a factor in the production of caries; in calculating the number of carious teeth per child in those children who take much sugar and in those who do not, the figures work out, curiously enough, in both cases to exactly three carious teeth per child.

#### Tongue.

The condition of the tongue was found to be very variable, and presented no constant features.

There were two types, however, which were fairly frequent. In the first, the posterior part of the tongue was rather thickly coated with a whitish-yellow fur (this was noted in 20 cases) whilst the rest of the organ was fairly clean, but was covered with a layer of saliva which Eustace Smith\* aptly likens to a coating of gum. This "gummy" appearance of the tongue is due to an excess of mucus in the saliva, and consequently before it can be seen, the dorsum of the tongue must be quite moist. It will not be observed, therefore, if the child has just swallowed, or has been doing much talking immediately prior to inspection. One may see a case in which the condition is typically present, but on looking at the tongue again after a lapse of a couple of minutes the gummy appearance has quite disappeared. Whilst this condition was fairly frequently observed,—it was noted as occurring in 17 cases; in 11 children it was stated not to be present—it was only very rarely as typically seen as it is in any severe case of pertussis.

The second type of tongue was that in which the mucous membrane of the entire dorsum had a whitish, sodden appearance, as if it had been steeped in some alkali, and in which the fungiform papillae stood

---

\*Eustace Smith, loc cit.

prominently out from this white background as raised, bright, pink prominences. My notes show that in the majority of cases these two types were distinct though in many cases they merged into one another and some of the characteristics of one type were combined with those of the other. In five cases the tongue was quite clean and apparently normal, In a considerable number the organ was rather flabby and indented with the teeth, though this was sufficiently marked to be noted in only six cases.

In four cases only, was both front and back of the tongue covered with a thick fur. 9 of the children who had gummy tongues had also mucus in the stools, 8 had not: the figures, by calculation should have been 6.8 with mucus, and 10.2 without.

A slightly larger proportion also, than one would have expected by calculation of children with gummy tongues were fond of sweets; the figure is 9, instead of 7.4.

#### Palate.

There is apparently a considerable divergence of opinion between different observers as to the significance of a high and narrow palate. By some authorities it is looked upon as an evidence of a neurotic constitution, by others it is ascribed entirely to the presence of adenoid obstruction. It

was of interest, therefore, in the cases under consideration, to examine the roof of the mouth, and also to study its configuration in relation to the presence or absence of adenoid growths in the nasopharynx. The height and breadth of the hard palate alter considerably as the child grows older, and it was frequently difficult to say whether a given palate was higher or narrower than the normal; the following figures are, however, probably fairly accurate. The palate was examined in 47 of the cases. In 13 cases it was described as high and narrow; in 5 cases as high, in 1 as high and rather narrow. One case was said to be narrow and 10 to be narrow and rather high. In the remaining 17 children it varied from "inclined to be high and narrow," to "rather flat."

We thus see that 30 of the 47 cases had either distinctly high or distinctly narrow palates. In 21 of these 47 children there were marked adenoid growths in the nasopharynx and only 4 out of the 21 had palates which were not either high or narrow; the expected number, according to calculation should have been 8.8.

We thus see that there is a distinct causal relationship between adenoid growths and a high or narrow palate.

In one case only was the palate deformed.

Throat.

More or less pharyngitis was almost constantly present and there was enlargement of tonsils or adenoid growths in more than half the cases. 27 children had large tonsils or adenoids or both, and two other children had already had their tonsils and adenoids removed. In 21 of the cases there was either no overgrowth, or it was very slight. Of the 29 cases in which tonsils or adenoids either were or had been excessive, in 10 cases both tonsils and adenoids were large, in 6 cases the enlargement was of the tonsils, and in 13 cases there was marked adenoid growth without tonsillar enlargement (in one of these 13 cases the tonsils had already been removed).

In these cases with adenoids or enlarged tonsils there were always signs of the condition, other than in the throat. Those children with adenoid growths had the "adenoid facies" more or less well marked, some had a discharge from the ears, a few had some degree of deafness, and there was generally a mucous discharge from the nostrils.

Signs of tonsillar or adenoid obstruction were generally observed too, in the narrow and poorly expanding chest. Five children were pigeon-breasted, and in two others also the chest was deformed.

Adenoids or enlarged tonsils were considerably



less frequently observed in the female than in the male sex amongst the 50 cases under consideration. Thus 23 boys and only 6 girls had adenoids or large tonsils, whilst 11 boys and 10 girls had no hyperplasia.

Most of the textbooks give a long list of the "reflex symptoms" of adenoids and enlarged tonsils. As we have already seen, several of the other signs and symptoms of chronic intestinal dyspepsia of children are produced or exaggerated by their presence, but from the fact of so many children having the disease without their presence we may at once conclude that they are not the origin of the trouble. If further proof were needed, one might mention the two children in my series of 50 cases in whom tonsils and adenoids had been removed and had not recurred - one 1, and one 3 years previously - but in whom the usual signs and symptoms of chronic intestinal dyspepsia were typically present.

#### Heart.

As formerly stated, no children with distinct morbus cordis were included in the series of cases.

In four of the cases there was some systolic impurity at the apex of the heart, but in none of them did there appear to be any organic valvular lesion. The pulse of another of the children was

very irregular; in this case, too, there was no organic cardiac disease.

Although no cases which were suffering from intercurrent disease were included in my series, chronic intestinal dyspepsia frequently complicates other maladies. It is often well marked in cases of morbus cordis, and also, as Eustace Smith has pointed out, in whooping cough.

#### Abdomen.

In only six cases was there "pot-belly;" in five out of these 6 cases there was either diarrhoea or alternating diarrhoea and constipation. The prominence of the abdomen in all these cases was due to excessive flatus.

In many of the children, the stomach was carefully examined, and it was found to be distinctly dilated only in one instance - in one of the above cases in which there was a pot-belly and a history of diarrhoea. In only one child was there any area of the abdomen in which there was marked tenderness on pressure. It occurred, in this case, in the right hypochondrium, and there was no apparent cause for the symptom. (The child recovered without any special treatment for this symptom).

Scybalous masses in the descending colon were searched for in a few of the cases in which the

bowels were said to be regular, but were never definitely palpated.

Comby (1) describes symptoms resembling those of chronic intestinal dyspepsia in children in whom he has discovered a floating kidney. About a dozen of my cases were accordingly examined for this condition but in none was it found to be present.

#### Urine.

The urine was examined for albumen in 35 of the cases and it was found to be present in 5 of these.

In all these 5 cases in which albumen was present the mothers were asked to bring a specimen of the water passed immediately on getting up in the morning. This was examined and in every case was found to show not the slightest trace of albumen. In none of the five children was there a history of scarlet fever. All five cases, then, were examples of cyclic albuminuria.

One of the children in whose urine albumen was present was a girl of 6 years. This age is a year younger than the youngest case mentioned by Sutherland (2) in his table of collected cases. The

---

(1) Comby, J: Brit. Med. Journ., 1898, II., 1154.

(2) Sutherland. loc. cit.

remaining four children were all ten years or older. In my series of 50 cases of chronic intestinal dyspepsia, 13 children were nine years old or more. The urine was examined in 8 of these 13 cases and albumen was present, as we have seen, in 4 of the 8 cases. As far as one could see, beyond the occurrence of albumen in the water there was no feature in the history or clinical examination of those children with cyclic albuminuria by which one could distinguish them from the other cases of chronic intestinal dyspepsia, and it seems a great mistake, therefore, to class as a separate disease cases identically similar to those of chronic intestinal dyspepsia possessing only the additional symptom of cyclic albuminuria.

It may be objected that cyclic albuminuria occurs at a later age than does the disease under consideration, but we have already seen that many of the other symptoms are more prominent at special ages - thus headache is not so frequent in children under five years of age, and headache occurring in the afternoon occurs generally between the ages of six and eight.

Though we cannot yet explain why cyclic albuminuria should be seen only in the older children, it would be absurd, on that ground, to set it apart as a separate disease.

An excess of Nucleo-albumen was frequently present, but, unfortunately, it was not always tested for, and the fact of its presence was not always noted. Its presence in excess is mentioned in 6 cases, and in 3 the reaction for its detection was negative.

In all cases in which the urine was examined, the specimen was obtained in Hospital, except in those with cyclic albuminuria, when the morning urine was brought. Uric acid was not observed, with the naked eye, in any specimen. Frequently, on standing the urine deposited a dense cloud of urates.

Sutherland states that a condition resembling that seen in exophthalmic goitre is seen in some cases of cyclic albuminuria. In one of the children included in my statistics, who had cyclic albuminuria, it was noticed that the eyes were becoming more prominent, and he also suffered from palpitation.

A certain number of cases were examined for Glycosuria, but in every instance the result was negative.

### Spine.

In two cases there was an appreciable degree of lateral curvature, but in both it was slight in amount.

Temperature.

Except during the attacks of "gastric fever," the disease probably always runs an a-febrile course. There was nothing to suggest the presence of pyrexia in any of the cases in my series at the time of examination, and in the few instances in which the temperature was taken it was found to be normal.\*

---

\* The children were always seen in the morning.



Pathology.

The opportunity of examining the internal organs of a patient suffering from this disease is rarely obtained, and, as far as I am aware, no case has been described.

We have already considered the theory of Eustace Smith (1) - viz., that the symptoms are due to an excessive mucus flux which deranges the digestion and interferes with the absorption of the food. The view that the disease is due to the "Lithaemic Diathesis", as suggested by Rachford (2) Comby (3) and others has also been considered.

It has been suggested that the condition is one of neurasthenia, and that the nervous element is the predominant factor in the disease; the good results of dietetic treatment are not in favour of this view.

It is probable that some defect not only of absorption but also of metabolism exists; in some cases, as we have seen, the appetite was voracious and in many of these the bowels were constipated. It is almost incredible that sufficient nourishment was not absorbed, but notwithstanding this, the child continued to waste. In this relation the

---

(1) loc. cit.

(2) " "

(3) " "

dense precipitate of urates, so often observed, is suggestive.

It would be of great interest to accurately measure the nourishment taken, the amount and nature of the excreta, and the daily weight. Such an investigation, however, would be difficult and very open to fallacies, for when taken into Hospital, these children at once improve and their symptoms diminish or disappear.

#### Diagnosis.

Little need be said under this heading, as most of the questions of differential diagnosis have already been considered when dealing with the symptomatology of the disease. As we have seen, the malady is frequently mistaken for tuberculosis. It seems a prevalent belief that pulmonary tuberculosis is quite common in children of this age, and one cannot help thinking that the origin of this idea is to be found in the diagnosis of consumption when the disease is really chronic intestinal dyspepsia.

Though it did not occur in any of my 50 cases, it not infrequently happens, especially when there are adenoids or large tonsils, that one gets on auscultation a number of moist crepitations confined to

one base - especially, in my experience, to the left base laterally. Removal of the enlarged glands and general treatment soon cause these pulmonary signs to disappear. It is well to remember, as Hutchison (\*) says, "that pulmonary tuberculosis is a disease almost unknown in children of this period of life."

Before one knows the disease as a definite entity, one is frequently at a loss how to diagnose, and in what way to treat, the numerous cases that appear, and one is haunted by a suspicion that there is "something behind" the symptoms; one's mind dwells darkly on general tuberculosis, tabes mesenterica, appendicitis, or Bright's disease, and one leaves the case with the feeling that one has failed to discover the root of the trouble. Once the existence of chronic intestinal dyspepsia of children is realised, however, the horizon clears, and, to one's own comfort, one quickly places the symptoms in their proper position, and is enabled at once to give the treatment which is found to cure or relieve the condition.

A word of warning must be given, however, not to neglect to examine every case fully, for the malady frequently accompanies, and may considerably mask, concomitant disease, and though, as we have already stated, phthisis is rare at this age, still of course

---

(\*) loc. cit.

it does occur. One point of difference is the irregular progress of chronic intestinal dyspepsia - exacerbations followed by remissions. In doubtful cases the evening temperature taken for some consecutive days ought to clear up the diagnosis, and except in the earlier stages the child suffering from tubercular disease is more emaciated and the skin is drier than in the milder malady. Bacteriological examination of the sputum, and the result of treatment ought to clear up any doubt which may still remain as to the nature of the disease.

If one recognises, in milder cases, the presence of the disorder, one will be able to treat the case much more effectively - just as, in a case of head sweating in an infant one must remember the possibility of rickets, even though at first sight, there are no other obvious signs of it.

#### Prognosis.

The disease is, of itself, probably never fatal. On the other hand it lessens the strength and diminishes the resistance against other maladies, and thus frequently produces a fatal issue where otherwise recovery would have resulted.

As to the prognosis of the continuance of the

malady itself, very much depends on a proper carrying out of the treatment. The 50 cases whose symptoms we have studied were all treated as outpatients, and accordingly one could not be certain that, even whilst under treatment, they carried out the instructions as to diet; most of them, when sufficiently recovered, returned to exactly the same food they had had prior to being brought to hospital.

At the same time, the results of treatment were very satisfactory. Every one of the children in my series of cases, after a certain time, ceased to attend hospital either because they were perfectly well, or because their symptoms had become so slight that further medical supervision was no longer considered to be necessary.

During the last few months, I have asked the parents again to bring their children to Hospital, in order that I might see how their health had been since they had been discharged. The average duration from the first visit to the last was 1 year and 8 months.

The result of my enquiry was as follows:-

Seven children were said to be quite well. In twenty-four cases it was said that the health was "much improved", or "very much improved". Amongst these twenty-four are included some in which the

only remaining symptom was an occasional attack of headache, epigastric pain or nocturnal restlessness. In ten instances the health was "improved" but several of the former symptoms still continued though with lessened severity.

One child had died from an attack of diphtheria; he was much better prior to his fatal illness.

The remaining eight cases had all improved, but had had relapses; in only two cases were they as ill as they were when first they were brought to Hospital.

No relation was found to exist between the duration of the illness prior to being attended and the result of treatment.

The prognosis in those cases in which the bowels were from the beginning regular would appear to be better than in those in which there has been constipation or diarrhoea. Thus of the 7 cases said now to be quite well, in five the bowels had always been regular; in none of the eight children who have had a relapse, and in only two of the ten who are only "improved" was this the case.

In six of these seven children who are now quite well, the appetite was originally poor or "ordinary", and in none of the seven children had mucus been observed in the stools. Nine children,



when first seen, had poor or ordinary appetites, regularity of the bowels, and no mucus in the stools. Eight of these were either well or very much improved, so that one sees that in these cases the prognosis is more favourable. Twenty of the fifty cases had enlarged tonsils or adenoids removed in the course of treatment. Four of the seven children said to be perfectly well were included in these twenty. None of the remaining symptoms or signs seemed to have an appreciable influence on the prognosis.

The mid-day urine was examined in three of the cases of cyclic albuminuria after periods of 1 year 3 months, 1 year 6 months, and 1 year 11 months. In each case there was still a trace - but only a trace - of albumen.

#### Treatment.

Without doubt, by far the most powerful remedy for the treatment of the immediate condition is change of air. That it is the actual change of air or of surroundings, and not change of diet that does good when the child goes from home can be seen from the fact that alteration of the diet will have comparatively little effect as long as the child remains at home even when kept away from school. Curiously enough, it seems to be comparatively

unimportant where the patient goes, as long as he has this change. Thus one of the cases in my series lived in the country at Hindhead - one of the healthiest spots in the South of England. Before coming to Hospital he had been staying for a week with an Aunt in Whitechapel, and was, his mother informed me, markedly better. The only difference in his diet in Town to what he had had in the country was that, in the former he had had quaker oats for breakfast in addition to his other food. Another of the cases in my series went to Aberdeen, and whilst there, - her mother told me - lived largely on sugar and sweets. She returned, nevertheless, almost quite well. As long as the children are at home and their symptoms still active one finds that cod liver oil, and to an even greater extent, syrup of the hypophosphites, are not merely useless, but actually deleterious. When away for a change, on the other hand, these remedies generally seem to suit quite well.

The beneficial influence of change as compared with treatment at home is shown by the increase of weight in those cases sent for a change. In those who were weighed the average gain of weight per week was half a pound; in those treated at home it was one sixth of a pound.

A change causes not only a gain in weight, but an amelioration or disappearance of all symptoms. A gain in weight does not always mean an improvement in the condition however. By giving cod liver oil in the early stages of treatment one may occasionally - though not as a rule - get an increase of weight, but at the same time the digestion becomes more upset.

It is probable that the change of surroundings has as much, or more, influence in causing the improvement as has the change of air. Thus when a child suffering from chronic intestinal dyspepsia is admitted into Hospital, even when put on the same diet that he had before admission, he rapidly improves in health.

We thus see that change of air and surroundings is a powerful therapeutic agent, in the immediate treatment of this disease. When the child has been two or three months in his new home, however, unless other treatment is carried out as well, the old symptoms are apt to return and soon become almost as severe as ever. The treatment which should accompany this change of air, and which should be continued, more or less modified, for years, is regulation of the diet. We have seen that a priori it is probable that an excessive ingestion of

carbohydrates is an etiological factor in the causation of the disease, and we find, practically, that it is essential in its treatment to limit their intake. Till the symptoms are greatly ameliorated it is well to allow the child no sugar, sweets, jam, potatoes, new bread, sago, tapioca, arrowroot, Indian corn flour, turnips or carrots. At the same time one gives instructions to prevent the taking of obviously indigestible foods, such as pastry, and also orders the food to be taken at regular intervals, and nothing to be taken between meals. Because of the idea that one of the etiological factors in the causation of the disease might be the absence of an indigestible residue in the food; coarse brown bread and medium ground oatmeal in the form of porridge (made with salt, and not too long boiled)\* were ordered and were found to be beneficial in most cases.

The evening meal should be a very light one, and the child should go early to bed.

The diet should thus consist of milk, rusk, thin toast or stale brown bread, eggs, lightly cooked fish, white meat or butcher meat, he may also have a little bacon, butter or dripping and green vegetables or ripe fruit in small amount.

Besides, if possible a change and the regulation of the diet, other hygienic measures must be attended to. One of the most important of these

is to ensure a sufficiency of fresh air. It is well for this reason, - as well as to save him from mental worry - to keep the child away from school till he is considerably better. In a few cases, however, especially in winter, and where there are no parks in the neighbourhood in which the child can play, he may be better at school than hanging about the streets or cooped up in a small room at home. To sleep with the window open, and to have a cold bath - with just the chill taken off it - in the morning, followed by a rub down with a rough towel, are useful. To avoid congestion of the internal organs, it is very important to keep the abdomen and the extremities warm and dry - a flannel binder and water tight boots and thick woollen stockings are of the greatest importance in treating the disease.

The patients should be kept free from undue excitement - whether pleasurable or the reverse, and evening parties, theatres, and excessive punishment are all equally deleterious.

Amongst drugs, the most beneficial are the alkalies, oleo-resins, and bitter tonics. Bicarbonate of potash or soda and citrate of potash have a markedly beneficial effect, especially when combined with nux vomica and myrrh or coto. Thus a

very useful prescription is:-  $\mathcal{R}_x$ . Potas. Bicarb.,  
 Potas. Citrat.  $\bar{a}a$  gr X, Tinct. Nucis Vom. m IV,  
 Tinct. Myrrh. m XXX Infus. Gent. Co. ad  $\mathfrak{Z}$ iii t.d.a.c.  
 Combined with this treatment one finds that a powder  
 containing rhubarb and soda with a little grey  
 powder given every night is of great benefit. If  
 there is constipation one gives sufficient rhubarb  
 to ensure a good motion in the morning, but when the  
 bowels are quite regular it is still of great use  
 in a diminished dose, and even when there is a  
 tendency to diarrhoea, by giving a small dose one  
 gets the astringent action of the rhubarb; thus a  
 relaxed condition of the bowels is no contra-in-  
 dication to its use. Another drug of the greatest  
 use is Aloes. It is best given in the form of  
 Decoctum Aloes Co. When the appetite is poor, it  
 can be given in drachm doses before meals. With  
 this dose there is no cathartic action. When  
 given between meals one can give two drachms thrice  
 daily - as Eustace Smith suggests - without undue  
 laxity of the bowels; this form of administration  
 is especially useful when the appetite is voracious.  
 No doubt some of the beneficial action of this pre-  
 paration of aloes is due to the myrrh which it con-  
 tains, but one can give much larger doses of myrrh  
 with nothing but good results. Forty minims of  
 the tincture to a child of eight years old can be



easily borne. Coto is very useful as a substitute for myrrh, but probably is not superior to it. I have used tabloids of gr.I of cotoin (kindly prepared for me by Messrs Burroughs and Wellcome) with excellent results. Its beneficial action seems to be due to the increased power of absorption which it causes.(1)

Carbonate of magnesia, and, when there is diarrhoea and much epigastric pain, bismuth, are often of service. Quinine and the vegetable bitters, such as gentian, quassia or calumba are also found to be of use.

Soltau Fenwick (2) has stated that in "The Gastric Dyspepsia of Children" there is a diminished production of hydrochloric acid, and (especially as we now know that hydrochloric acid is one of the most powerful of pancreatic stimulants), it therefore seemed of use to give a dilute solution of hydrochloric acid in this malady, which was accordingly done  $3\frac{1}{2}$  hours after meals, without, however, any satisfactory result.

Dilute mineral acids are, however, occasionally useful where improvement has commenced; under

---

(1) Brunton, T. Lauder, A Text Book of Pharmacology, Therapeutics and Materia Medica. 3rd edition, p. 387.

(2) Fenwick, Soltau, Clifford Allbutt's System of Medicine, loc. cit.

their exhibition - when not given too early - the child usually improves in general health, he rarely, however, puts on flesh, and his weight remains stationary, or he may actually grow lighter.

Pepsin was also given in a few cases, and seemed to have a beneficial influence; it was not given in a sufficient number of instances, however, to draw any definite conclusions as to its value.

Charcoal was given as a mechanical means of removing the mucus and a stimulant to the bowel wall, and its administration was found to be of distinct service.

Small doses of alcohol given before or during meals are often useful. It is best given as sherry, slightly diluted with water, or as claret. Probably the beneficial effect of some of the tinctures used in the treatment of the disease may be in part due to the alcohol which they contain.

Iron is not well borne while the disease is still at its height, but during convalescence it is extremely useful; it can be given in drachm doses of Vinum Ferri combined with a similar dose of Decoct. Aloes. Co.

When most of the symptoms have disappeared, one may very cautiously begin to give Cod liver oil or syrup of the hypophosphites, but they must be given in small doses, and their effect strictly watched.

Treatment of Special Symptoms.

Little need be said under this heading, for full directions for Symptomatic Treatment are given in every text book on Children's Diseases. One or two points are, however, worthy of mention.

Night Terrors.

It is rare that special treatment is required for this symptom, but occasionally for a few nights it may be necessary to give some sedative. Anti-pyrin or phenacetin have a markedly calmative action.

Nervousness.

If the child is excessively nervous, it may be of use at first to add a small dose of bromide to the medicine.

Lienteric Diarrhoea

Arsenic in the form of minim doses of Liquor Arsenicalis is generally able to control the excessive action of the bowels, and, at the same time, it exercises a beneficial effect on the general course of the disease. If this fail, it may be necessary to give doses of two or three minims of laudanum.

Eneuresis.

Removal of tonsils and adenoids often is all that is necessary to cure the condition. Belladonna, however, even without this operation, is

generally successful in stopping the habit. It must be given in ascending doses, and it may be necessary to give it till it begins to exhibit its physiological effects. To a child of eight, one can generally give - when the drug is gradually increased - up to at least forty-five minims of the tincture, thrice daily, without undue discomfort; it seems to do good also to the general condition. It is practically always successful in checking sweating at night in these cases.

#### Enlarged Tonsils and Adenoids.

In 20 of my 50 cases either enlarged tonsils, adenoids, or both were removed. In four of these cases no medicine or instructions as to diet were given till at least ten days after the operation. After that time two of the cases had had no more night terrors, and no longer snored, one was less languid, and one had ceased to cough. There was no improvement in the other symptoms. Ten days is of course too short a period in which to see the full benefit of the operation, and when the growths are large there is no doubt that their removal is strongly indicated. When their enlargement is slight, painting the throat with some astringent, or, in the case of adenoids, a nasal douche containing such remedies as Bicarbonate, Chloride and

Biborate of Soda, and, if necessary, a little Chlorate of Potash, will be found of great service.

Removal of tonsils or adenoids will not be followed by great success unless after the operation the child is taught to breathe properly.

By means of diet and medicines one can probably always remove the symptoms of the disease, but it is quite the exception to get, by these means alone, a marked and rapid gain in weight, and in order to get a rapid convalescence, change of air, as already stated, is essential.

#### Summary.

It may be well, before concluding, briefly to summarize the chief facts elicited in the study of the disease.

We have seen, then, that it is an extremely common disorder. Its many symptoms have been discussed in every text book on the diseases of children and treated by every practitioner, but with few exceptions, these symptoms have been treated as separate diseases and their connection with each other has only vaguely been realised. This has resulted frequently in the making of an incorrect diagnosis, generally in the giving of an indefinite prognosis, and practically always in the ordering of a wrong treatment.

In its frequency of incidence, in the fact of its affecting a special period of childhood, and in the way in which the mildest cases have no definite demarcation from the normal, the disease closely resembles rickets. (\*)

The present position of chronic intestinal dyspepsia of children in the medical mind is comparable to that of rickets were the latter not yet described, and were each of its symptoms regarded as a special disease to be treated symptomatically.

Fifty well marked cases of Chronic Intestinal Dyspepsia have been collected, and the results of an investigation into their etiology, symptomatology history, and treatment is as follows:-

#### Etiology.

The disorder generally occurred in children between the ages of five and eight, though it appeared as early as three and may continue, probably, to beyond puberty. It was more frequent in boys than in girls. It occurred markedly in certain families, probably partly from a hereditary tendency and partly from the diet and surroundings, though which of these factors is the dominant one has not yet been ascertained. It is probable that it most frequently occurs in children of a neurotic parentage. It occurs in all races and classes in

---

(\*) Though there is this similarity between the two diseases, it is not for a moment suggested that there is any etiological relationship between them.



this country, in Country as well as in Town, though it is probably more frequently seen in town bred children of the poorer classes and especially in children with town bred ancestors.

Overcrowding and consequently insufficient fresh air are, no doubt, factors in its production, though probably more important is the sedentary life at school with its cramming of the brain and disregard for the physical well-being. Probably even more important is the excess of carbohydrates in the diet - an excess which, in the life of the Nation, is of only comparatively recent date. Carious teeth and the occurrence of the second dentition may predispose to the condition.

The disease was first observed, in a few cases, after measles or whooping cough, the onset, however, was generally insidious.

#### Duration.

The malady, if untreated, will probably last for years; it varies very much from month to month in intensity, and occasionally the child may be comparatively fairly well.

#### Symptoms.

Certain symptoms were practically constantly present. These were:- (1) Languor, especially in the morning; (2) Excitability - the child was

nervous and easily moved; (3) Nocturnal Restlessness - frequently night terrors, also talking, snoring, grinding the teeth, and occasionally walking in the sleep. Nocturnal restlessness did not appear to be due to the presence of tonsils or adenoids, but constipation and school worries had a distinctly predisposing influence; (4) Frontal Headache. This often came on in the morning, at other times it appeared after school; in the latter case it was generally due to eye strain. (5) Cough. Due to pharyngeal irritation. (6) Epigastric Pain. The pain probably generally originates in the large intestine though it did not occur more frequently in cases in which there was constipation. (7) Deranged Appetite. The appetite was generally poor, but in some cases it was voracious, and in others it alternated between these two extremes. It was generally very "fanciful". Poor appetite was more frequent amongst the female sex in the disease, and occurred especially when mucus was present in the stools. The taking of sugar and sweets to excess did not have any causative relation to any one of the signs and symptoms of the disease. (8) Wasting, which, though always present, never amounted to emaciation. Certain other symptoms were also present, though not so constantly as the above. The bowels were frequently irregular, either

constipation or diarrhoea being present, sometimes the one condition alternated with the other. In a few cases there was lienteric diarrhoea. On the other hand the bowels in many cases were quite regular, and constipation was not found to be the prominent symptom and factor in the etiology which by some authors it is said to be. The motions were generally natural in colour. "Gastric fever"-attacks of vomiting, diarrhoea, headache, high temperature, and great prostration - occurred in some of the cases; in others "bilious attacks" were frequent. An excess of mucus was observed in not quite half the cases; it occurred generally when there was constipation or diarrhoea. Thread worms occurred in a considerable number, and tape and round worms in a few of the cases, their presence is to be looked upon and treated as a symptom of the disease.

Eneuresis occurred in a considerable number of the cases; constipation did not appear to have much influence on its production; on the other hand it was very frequently associated with adenoids or enlarged tonsils. Many of the children had attacks of pallor, with or without faintness; this occurred especially frequently in cases in which intestinal parasites were present. A majority of the children suffered from cold hands and feet.

Pains in the limbs were occasionally complained of.

On

Physical Examination

one found that the children generally had a sallow complexion with dark rings under the eyes. They flushed easily. Their conjunctivae shewed, as a rule, some degree of anaemia. Their muscles were flabby and their nutrition - especially amongst the older children - distinctly below par, though the thinness never amounted to emaciation. They generally had bad teeth, the tongue was very variable, but was frequently coated behind and "gummy" in front, in some cases white, sodden, and with prominent fungiform papillae. The children with gummy tongues were generally those who had mucus in their stools. The palate was very often higher or narrower than the normal, and this was especially the case in children suffering from adenoid growths in the naso-pharynx. The children generally had a certain degree of chronic pharyngitis, and more than half of them had adenoids or enlarged tonsils. This enlargement was much more frequent amongst the boys than amongst the girls. The chest expansion was generally poor, and in a few cases the chest was actually deformed. A considerable number of

the older children had cyclic albuminuria, though in no other respect did these children differ from the other cases.

A copious deposit of urates occurred in many instances.

#### Pathology.

No description has yet been given of the pathological anatomy of the condition; as the malady is not a fatal one, opportunity for such an examination is rare. It has been suggested that the disease is due to an excessive secretion of mucus produced by catarrh of the mucous surfaces, this again caused by the exanthemata, or by excessive carbohydrate ingestion.

There is no doubt impaired absorption of food, and probably also some defect of metabolism. There is little support for the theories that the condition is a gouty one or that it is a form of neurasthenia.

#### Diagnosis.

The malady most frequently mistaken for this disease is tuberculosis. Pulmonary tuberculosis is rare at this age and in chronic intestinal dyspepsia the irregular course of the malady, the absence of fever, and the negative result of bacteriological examination, as well as the lesser degree of emaciation and dryness of the skin, and the

result of treatment serve to differentiate it from the severer illness.

#### Prognosis.

The disease is probably never of itself fatal, though by reducing the strength it may indirectly lead to a fatal issue. The prognosis as to its continuance is always good, if it be properly treated. It is especially good when the bowels are regular, the appetite never voracious, and when no mucus has been seen in the stools.

#### Treatment.

For the permanent cure of the malady, the most important factor in its treatment is limitation of the carbohydrates in the food. Keeping the abdomen and extremities warm, and general dietetic and hygienic means are also very necessary. The improvement derived from these means alone, or even when combined with medicinal treatment, is, however, generally comparatively slow compared with that which almost always occurs when the patient has a change of air and surroundings.

The general improvement produced by a change is usually rapid and very marked; without other remedies, however, it is apt to be only temporary.

Medicines are of great value not only in alleviating special symptoms, but also in favourably



influencing the course of the disease. Except during convalescence, cod liver oil, and the syrup of the hypophosphites are distinctly harmful. The most useful remedies are alkalies, oleo-resins, and bitter tonics; the actual drugs most useful being bicarbonate and citrate of potash, rhubarb, aloes, nux vomica, myrrh, coto, grey powder, and the vegetable bitters. The mechanical action of charcoal in clearing away mucus is often useful. During convalescence iron may be given, and occasionally one may be able to give small doses of cod liver oil or the dilute mineral acids. It is not often that much symptomatic treatment is required, but for a short time at first it may be necessary, and antipyrin or phenacetin for the night terrors, bromide for the excessive nervousness, arsenic or opium for the lenteric diarrhoea, and, opium also for the epigastric pain may be indicated.

Belladonna can generally check the eneuresis, but in these cases, as in all others where there are considerably enlarged tonsils or adenoids these should be removed. If they are not very excessive they may be treated by astringents. Instruction in proper respiration should always be given after the operation.

Such is a brief summary of the facts elicited from the study of a malady of profound interest

alike because of its extreme frequency and its amenability to treatment. Of necessity my contribution to the knowledge of the subject can not be as complete as I could desire. If others will work with me in making investigation on the lines laid down in this Thesis, in time we shall arrive at a more definite knowledge of the relative importance of the factors which produce the condition.

Thus we may hope to be in a position to cure, and probably to a great extent to prevent a disease which is the cause of much needless suffering in childhood, and by the successful combating of which we will raise the physical standard of coming generations.

# LIST OF REFERENCES.

---

- Carr;J.Walter, Chronic Dyspepsia in Children.  
American Journ. Med. Sciences.  
1895 CX.p.666.
- Smith;Eustace, On the Wasting Diseases of Infants  
and Children. 6th Edit. 1899.
- Hutchison;Robert, Clinical Lectures on the Diseases  
of Children. Lecture IX. Dyspepsias of the second Dentition. The  
Clinical Journal.1903,XXI.377.
- Starr;Louis, Diseases of the Digestive Organs in  
Infancy and Childhood. 3rd Edit.  
1901.
- Fenwick;W.Soltau, The Disorders of Digestion in  
Infancy and Childhood. 1897.
- Fenwick;W.Soltau, Dyspepsia in Childhood. Allbutt's  
System of Medicine. 1897,III.407.
- Goodhart;J.F.and Still;G.F, The Diseases of Children. 7th Edit.  
1902.
- Henoch;Ed, Vorlesungen über Kinderkrankheiten,  
10te Auflage, 1899.
- Dessau;S.H. Chronic Intestinal Indigestion in  
Children: Pediatrics. 1898,p.458.
- Dessau;S.H. Ibid. Medical News,1898,LXXII.509.
- Rotch;T.Morgan, Pediatrics; the Hygienic and Medical  
Treatment of Children,1901,p.799.
- Donkin;H.Bryan, The Diseases of Childhood (Medical)  
1893,p.62.
- Holt;L.Emmett, Diseases of Infancy and Childhood.  
2nd Edit.1903.
- Sutherland;G.A. On some Symptoms associated with  
the Uric Acid Diathesis in  
Children. Brit.Med.Journ. 1892.I.  
856.

- Rachford;B.K.,      Lithaemia. Archives of Pediatrics, 1897, XIV. p.561.
- "      Symptomatology of Lithaemia. Ibid. p.661.
- "      Treatment of Lithaemia. Ibid.p.742.
- Comby;J.      L'Uricémie chez les Enfants. XIII.Congrès Internat.de Med.1900 Sect.Méd. de l'Enfance. p.609.
- Levison;F.      Die Harnsäuremediathese. 1893,p.111.
- Sutherland;G.A.      Cyclic Albuminuria; 1900, p.13 et seq.
- Rousseau-Saint-Phillippe.      Crises abdominales et lithiase intestinales chez l'enfant. Revue Mensuelle des Maladies de l'Enfance, 1902, XX. 45.
- Rowntree; R. Seeböhm,      Poverty, A Study of Town Life. 1901.
- Booth;Chas., (assisted by others).      Life and Labour of the People in London. 1st Series. Poverty. 4 vols. 1903.
- Heart of the Empire (The). Discussions of Problems of Modern City Life in England, 1901.
- Cantlie;James,      Degeneration amongst Londoners, 1885.
- Steiner;      Das nächtliche Aufschrecken oder Aufkreischen (night terrors) der Kinder. Jahrb. f. Kinderheilk. 1875, VIII. p. 153.
- Wertheimer,      Ueber den Pavor Nocturnus der Kinder (nächtliches Aufschrecken: night terrors) Deutsch. Arch. f. Klin. Med. 1879, XXIII. 564.
- West;C.,      Lectures on the Diseases of Infancy and Childhood, 7th Edit., 1884.
- Silbermann;O.,      Zur Lehre vom Pavor nocturnus der Kinder, Jahrb. f. Kinderheilk. 1883, XX. 266.

- Atkinson; W.B., Night Terrors in Children, Archives of Pediatrics, 1884, I. 753.
- Treves; Fred, Physical Education, 1892.
- Comby; J. Brit.Med.Journ. 1898, II. 1154.
- Brunton, T.Lauder, A Text Book of Pharmacology, Therapeutics and Materia Medica, 3rd edition, p. 387.